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AUTHOR Guskey, Thomas R.
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ABSTRACT

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TEACHER EFFICACY, SELF-CONCEPT, AND ATTITUDES TOWARD THE IMPLEMENTATION OF MASTERY LEARNING

Thomas R. Guskey

College of Education
University of Kentucky
Lexington, Kentucky 40506
Phone: 606/257-8666

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Abstract

This paper describes an exploratory study designed to investigate the relation between selected teacher perceptions past research has shown to be shared by highly effective teachers, and teacher attitudes toward the implementation of new instructional practices. Data were gathered through a questionnaire administered to 120 elementary and secondary school teachers immediately following a half-day staff development program on mastery learning instructional strategies. Results showed that measures of teacher efficacy, teaching affect, and teaching self-concept were significantly related to teachers' attitudes regarding the congruence, difficulty of use, and importance of the recommended practices. Implications for instructional improvement efforts are discussed.

Teacher Efficacy, Self-Concept, and Attitudes Toward the Implementation of Mastery Learning

The vast majority of modern educational improvement efforts involve the implementation of new or alternative instructional practices. In some cases this requires only minor changes in classroom activities, but in others it may mean the use of an entirely new curriculum or instructional approach. Since the decision about whether or not to try these recommended practices is a conscious one made by teachers (except, of course, in those instances where implementation is mandated), it is important to understand what factors influence that decision.

Doyle and Ponder (1977) suggested that three criteria influence teachers' decisions regarding the implementation of recommended practices. The first is instrumentality, which refers to how clearly and specifically the practices are presented. The second is congruence, which describes how well the new practices are aligned with the teacher's present teaching philosophy and practices. The third is cost, which is a teacher's estimate of the extra time and effort the new practices require compared to the benefits such practices are likely to yield. In a comparison of the results from five teacher effectiveness experiments, Mohlman, Coladarci, and Gage (1982) found that all three of these criteria did, indeed, influence the degree of implementation. In a later study, Sparks (1983a) hypothesized that two additional criteria, teachers' perceptions of the importance of the new practices and their perceptions of the difficulty of use, further influence implementation.

Her results showed, however, that while ratings of importance were significantly correlated with implementation, ratings of difficulty were highly individualistic and unrelated to implementation.

Research has also shown that teachers in highly effective schools and those who are unusually effective in having their students learn well often share a number of common beliefs and perspectives. For example, highly effective teachers typically have a strong sense of teacher efficacy. That is, they believe that they can help nearly all students learn, even those who may be difficult or unmotivated (Berman & McLaughlin, 1977). Such teachers also tend to be very positive in their feelings about teaching and are generally confident about their teaching abilities (Brandt, 1986).

Little is known, however, about the relation between these two sets of teacher perceptual variables. The present study was designed to explore that relation between selected teacher perceptions known to be shared by highly effective teachers, and teacher attitudes toward the implementation of new instructional practices. It was believed that a better understanding of that relation would yield valuable insights for researchers concerned with the implementation of new instructional practices, and those involved in studies of effective instruction generally.

Method

Sample. The data for this investigation were gathered from 120 elementary and secondary school teachers from one inner city, one suburban, and one rural school district. These teachers were all participating in a special staff development program for which they received salary lane

credit. Forty-six of these teachers were male; 74 were female. In general, these teachers were experienced classroom veterans, having an average of eleven years teaching experience.

Procedure. The staff development program in which these teachers participated focused on mastery learning instructional strategies (Bloom, 1968, 1971). Although there are several variations of mastery learning, most involve whole-group instruction followed by a diagnostic formative test designed to help students identify and then correct their learning errors. This "feedback-corrective" process is usually followed by a second formative test on which the majority of students would be expected to attain a predetermined mastery standard. Reviews of mastery learning research have shown that while the use of these strategies requires only minor changes in the instructional procedures of most teachers, their application typically results in improved levels of achievement and more positive learning outcomes (Block & Burns, 1976; Guskey & Gates, 1986).

To investigate the relation between the selected perceptual and attitudinal variables, the entire sample of teachers was administered a detailed questionnaire immediately following a half-day presentation and discussion on the theory and application of mastery learning procedures. This questionnaire contained a revised version of the Responsibility for Student Achievement (RSA) scale (Guskey, 1981) to measure teacher efficacy. The RSA contains 30 alternative-weighted items that assess teacher's beliefs in their own control of factors influencing the academic successes and failures of their students. Two subscale scores are derived from the RSA, one assessing self-responsibility or efficacy re-

garding classroom successes (R+), and one regarding classroom failures (R-). These subscale scores are generally reported separately, since other research has shown they measure unique constructs (Guskey, 1982, 1987).

From the 15 items contained in each of these subscales, the ten with the greatest discrimination and response variance were selected for the revised version of the scale used in this study. In addition, item responses were reduced to a 1 to 10 rating, and then averaged across items within each scale, to obtain the subscale score. Pilot testing showed the revised R+ and R- subscales to have an internal reliability of .76 and .83, respectively.

Teacher efficacy was also measured by including the two efficacy items from the Rand Corporation's Change Agent Study (Berman & McLaughlin, 1977). In these items teachers are asked to indicate their feelings regarding a particular statement on a five-point scale from Strongly agree to Strongly disagree. The first of these items states, "When it comes down to it, a teacher really can't do much because most students' motivation and performance depends on their environment." The second item is, "If I really try hard, I can get through to even the most difficult and unmotivated students."

A second part of the questionnaire contained a scale designed by the author to assess affect toward teaching; that is, how much teachers like teaching and how positively or negatively they feel about various aspects of teaching. This scale contains 20 likert-type items, most of which were adapted from items in the Self-Observational Scales (SOS) for students (Katzenmeyer & Stenner, 1974). Each item on this scale asks

teachers to indicate their feelings regarding a particular statement. Five options are available for the rating, ranging from Strongly agree to Strongly disagree. Statements are both positive and negative. For example, a positive item would be, "I enjoy learning about new classroom techniques," while a negative item would be, "I often get bored in discussions about education." The weights that are assigned response options for positive items are reversed in tallying responses to negative items. Scores on this scale are the average rating across items. Pilot testing of the scale showed it to be fairly reliable, with a Cronbach alpha coefficient equal to .82.

A third scale in the questionnaire, also developed by the author, assessed teaching self-concept. Like the affect toward teaching scale, this scale consists of 20 likert-type items. These items are behaviorally-based (rather than norm-referenced) self-concept items, similar to those developed in the research of Brookover (1973). Each item asks teachers to indicate their feelings in relation to particular behaviors or characteristics relevant to teaching. Items are both positive and negative, and are rated on a five-point scale from Strongly agree to Strongly disagree. An example of a positive item would be, "I am very proud of my performance as a teacher," while a negative item would be, "I sometimes have doubts about the effectiveness of my teaching." Scores on the scale are also the average ratings across items. Pilot testing of this scale showed it also to be fairly reliable, with a Cronbach alpha equal to .78.

A final section in the questionnaire was designed to assess teachers' attitudes toward the implementation of mastery learning instructional

practices. Specifically, teachers were asked to rate, on a series of five-point likert-type scales, the congruence, cost, difficulty, and importance of mastery learning practices. Congruence was measured by an item which asked, "How similar is mastery learning to the way you presently conduct your classes?" Ratings ranged from Very similar to Very different. To assess cost, teachers were asked, "How much extra work will it take for you to implement mastery learning in your classes?" Ratings for this item ranged from No extra work to Lots of extra work. The item addressing difficulty was, "How difficult will it be to implement mastery learning in your classes?" Again the rating scale went from Very easy to Very difficult. Lastly, importance was measured with an item which asked, "How important do you believe it is for teachers to use practices like mastery learning?" Ratings ranged from Unimportant to Extremely important. Although a rating of instrumentality was considered relevant, it was deemed inappropriate in this study since exactly the same presentation was made to all teacher groups and, therefore, there was no accurate basis for comparison.

The responses teachers gave on the various subscales included in the questionnaire, along with demographic information gathered on the teachers, composed the principle data for the study.

Results

Of the 120 teachers who participated in the staff development program, six responded to the questionnaire incorrectly or failed to complete all sections of the questionnaire. Therefore, analyses were based on complete data gathered from 114 teachers.

The first step in analyzing questionnaire responses was to calculate means and standard deviations on the various scales. These are illustrated in Table 1, along with the ranges of the responses. Overall, these teachers expressed greater personal efficacy regarding positive results with students than they did for negative results ($\underline{t} = 5.09$ $p < .01$), a finding typical in research on teacher efficacy in practical classroom situations (Guskey, 1982). They also expressed generally positive attitudes about teaching (teaching affect) and a fairly high level of confidence in their teaching abilities (teaching self-concept). In terms of the mastery learning strategies, they indicated these practices were fairly similar to the way they presently conduct their classes and were very important. At the same time, however, they indicated that implementing mastery learning would be somewhat difficult and would be likely to require quite a bit of extra work.

Insert Table 1

Tests were next conducted to determine if the groups of teachers from the three different school districts included in the study systematically differed in any way. Comparisons showed that no differences on any of the teacher measures were statistically significant. Differences with regard to grade level assignment and gender of the teachers were also nonsignificant.

Next, product-moment correlations were computed among all teacher variables. These are shown in Table 2, and reveal several interesting patterns. As earlier comparative tests had indicated, neither years ex-

perience nor grade level assignment was significantly related to any of the perceptual or attitudinal variables. Apparently differences in these variables have no association with teachers' experience or the grade level at which they teach. As expected among the perceptual variables, both efficacy regarding positive events (R+) and efficacy regarding negative events (R-) were significantly related to the more global measure of efficacy (Eff) obtained from the Rand items ($r = .42$ and $.43$, respectively). However, the correlation between R+ and R- measures was not statistically significant, indicating that these measures should, indeed, be treated as separate indices. Also as expected, measures of efficacy were positively and significantly related to both teaching affect and teaching self-concept. That is, more efficacious teachers generally liked teaching more and expressed greater confidence in their teaching abilities.

Insert Table 2

Correlations among the perceptual variables and teachers' attitudes toward the implementation of mastery learning revealed an unexpected trend, however. The more efficacious teachers (as measured by the Rand items) did tend to rate mastery learning as more important ($r = .42$), more congruent with their present teaching practices ($r = -.36$), and easier to implement ($r = -.33$), than did their less efficacious colleagues. But unexpectedly, ratings of cost; that is, the amount of extra work required to implement mastery learning, were unrelated to any of the perceptual variables and also to ratings of the importance of

mastery learning. This result is very similar to what Sparks (1983a, 1983b) had found regarding ratings of "difficulty." In this study, however, it was estimates of cost, rather than difficulty, that were highly individualistic and varied.

As anticipated, teachers who saw mastery learning as congruent with their present teaching practices rated it as easier to implement ($r = .50$), requiring less work ($r = .40$), and highly important ($r = -.37$). Conversely, those who rated mastery learning as very different from their present teaching methods rated it as much more difficult to implement, requiring a great deal of extra work, and perhaps as a result, much less important as an instructional process. In addition, while ratings of costs were related to both congruence ($r = .40$) and difficulty ($r = .52$), they were uncorrelated with ratings of importance ($r = .06$). Apparently, teachers' estimates of the amount of extra work required to implement mastery learning have little bearing on how important they believe these ideas are.

Conclusions

The results from the present investigation indicate that there are fairly strong and statistically significant relations between perceptions of teachers that are generally associated with instructional effectiveness, and attitudes toward the implementation of instructional innovation. Assuming that teachers who express a high level of personal efficacy, like teaching, and feel confident about their teaching abilities are, indeed, highly effective in the classroom, these teachers also appear to be the most receptive to the implementation of new instruc-

tional practices like those associated with mastery learning. Those who might be assumed to be less effective, on the other hand, appear to be the least receptive to such implementation.

Several reasons might be suggested for the differences identified in this study and the relations among the variables. One is simply the nature of the particular innovation upon which the investigation was based. As an instructional process, mastery learning synthesizes many of the elements known to be a part of highly effective teaching. Therefore, more effective teachers are likely to be incorporating many aspects of mastery learning in their present teaching practices already, while less effective teachers probably are not. As such, the judgment of these teachers concerning congruence and difficulty may be simply an accurate reflection of the truth. Differences in judgments of the importance of mastery learning ideas may, in turn, reflect a somewhat "defensive" response on the part of the less effective teachers. It is as if they were saying, "because these ideas are dissimilar to what I am presently doing, they cannot be very important."

Another possible explanation for these differences is that highly effective teachers may simply be more open and more receptive to new ideas on instructional practice than are their less effective colleagues. Mann (1986) suggests this is typically the case in instructional improvement efforts, where those needing improvement the least are the first to become involved in new programs, while those needing it most remain separate and uninvolved. Because this study dealt with only one particular innovation, such a trend could not be tested. But it does represent a highly probable explanation for the results.

Measures of teacher perceptions and attitudes are increasingly being employed in studies of the implementation of new educational programs and instructional effectiveness. Clearly, a better understanding of the relationships among these perceptions and attitudes will broaden our knowledge of teachers' decisions regarding implementation and the variables most likely to affect those decisions. The results from this investigation should prove useful to those involved in program implementation and those seeking to identify the perceptual variables that are most important to address in any implementation effort. Although these results provide no definite solutions to implementation problems, it is hoped they help clarify the issues involved.

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Table 1

Means and Standard Deviations of Various Teacher Measures
(n=114)

Variable	Mean	Range	St. Dev.
Years Experience	11.80	2-33	7.69
Grade Level	4.93	1-12	3.28
R Positive	6.19	1-10	.96
R Negative	5.00	1-10	1.49
Rand Efficacy	3.97	1-5	.73
Teaching Affect	4.04	1-5	.45
Teaching Self-concept	3.82	1-5	.49
Congruence	2.30	1-5	.85
Cost	3.13	1-5	.87
Difficulty	2.50	1-5	.91
Importance	4.09	1-5	.74

Table 2

Intercorrelations Among the Variables
(n = 114)

Vars	Yrs	Grd	R+	R-	Eff	SC	Aff	Cong	Cost	Diff	Imp
Yrs	1.00										
Grd	.14	1.00									
R+	-.04	-.01	1.00								
R-	-.06	-.10	.21	1.00							
Eff	.05	.09	.42*	.43*	1.00						
Aff	.08	.09	.28*	.28*	.55*	1.00					
SC	.15	.10	.27*	.24	.51*	.69*	1.00				
Cong	-.06	-.11	-.34*	.02	-.36*	-.36*	-.39*	1.00			
Cost	.00	.03	-.12	.07	-.14	-.20	-.23	.40*	1.00		
Diff	.03	-.04	-.21	-.08	-.33*	-.39*	-.48*	.50*	.52*	1.00	
Imp	-.08	-.04	.28*	.32*	.42*	.27*	.34*	-.37*	-.06	-.28*	1.00

p < .01